Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: **J13060456**

Project Name:

Customer Name(s): Josh Quinn

Customer Address: 3195 Pine Hall Rd
Mailcode: Belews Steam Station
Belews Creek, NC 28012

Lab Contact: Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) Digitally signed by jay perkins DN: cn=jay perkins, o=Analytical Lab, ou, email=jay.perkins@duke-energy.com, c=US Date: 2013.07.12 10:46:54 -04'00' **Date:** 7/11/2013

Jason C Perkins

Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2013014995	BELEWS	27-Jun-13 8:00 AM	David Horne	Bottom Ash Sluice 0.3m
2013014996	BELEWS	27-Jun-13 9:52 AM	David Horne	Service/ Intake Water 0.3m
2013014997	BELEWS	27-Jun-13 9:15 AM	David Horne	Ash Basin
2013014998	BELEWS	27-Jun-13 7:50 AM	David Horne	Blank

4 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DBA Account Date: 7/11/2013

Certificate of Laboratory Analysis

Order # J13060456

Site: Bottom Ash Sluice 0.3m **Sample #: 2013014995**

Collection Date: 27-Jun-13 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
OIL AND GREASE IN WATER - SOLID PHASE EXTRACTION								
Oil and Grease	**< 5**	mg/L		5	1	EPA 1664B	06/28/2013 10:15	TJA7067
BIOCHEMICAL OXYGEN DEMAND (BOD) - (Analysis Performed by Pace Laboratories)								
BOD	**Complete**					Vendor Method		V_PACE
AMMONIA (COLORIMETRIC)								
Ammonia (Colorimetric)	**0.037**	mg-N/L		0.02	1	EPA 350.1	07/08/2013 11:54	BGN9034
NITRITE + NITRATE (COLORIMETRIC)								
Nitrite + Nitrate (Colorimetric)	**< 0.01**	mg-N/L		0.01	1	EPA 353.2	07/08/2013 11:08	BGN9034
TOTAL KJELDAHL NITROGEN (COLORIMETRIC)								
Total Kjeldahl Nitrogen (Colorimetric)	**0.20**	mg-N/L		0.15	1	EPA 351.2	07/10/2013 14:02	TLINN
TOTAL PHOSPHORUS (COLORIMETRIC)								
Total Phosphorus (Colorimetric)	**0.035**	mg-P/L		0.005	1	EPA 365.1	07/09/2013 08:34	BGN9034
INORGANIC IONS BY IC								
Chloride	**7.6**	mg/L		0.5	5	EPA 300.0	07/01/2013 15:16	JAHERMA
Sulfate	**10**	mg/L		1	10	EPA 300.0	07/01/2013 15:16	JAHERMA
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**0.790**	mg/L		0.05	10	EPA 200.7	07/08/2013 10:19	MHH7131
Manganese (Mn)	**< 0.05**	mg/L		0.05	10	EPA 200.7	07/08/2013 10:19	MHH7131
Silicon (Si)	**7.21**	mg/L		0.1	10	EPA 200.7	07/08/2013 10:19	MHH7131
Titanium (Ti)	**0.072**	mg/L		0.05	10	EPA 200.7	07/08/2013 10:19	MHH7131
Vanadium (V)	**< 0.05**	mg/L		0.05	10	EPA 200.7	07/08/2013 10:19	MHH7131
Miscellaneous Tests by a Vendor Laboratory - (Analysis Performed by Element One)								
Vendor Parameter	**Complete**					Vendor Method		V_ELE1
SULFIDE - (Analysis Performed by Element One)								
Vendor Parameter	**Complete**					Vendor Method		V_ELE1
TOTAL DISSOLVED SOLIDS								
TDS	**94**	mg/L		25	1	SM2540C	07/02/2013 14:14	SWILLI3

Site: Service/ Intake Water 0.3m **Sample #: 2013014996**

Collection Date: 27-Jun-13 9:52 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
OIL AND GREASE IN WATER - SOLID PHASE EXTRACTION								
Oil and Grease	**< 5**	mg/L		5	1	EPA 1664B	06/28/2013 10:15	TJA7067

Certificate of Laboratory Analysis

Order # J13060456

Site: Service/ Intake Water 0.3m **Sample #: 2013014996**

Collection Date: 27-Jun-13 9:52 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
BIOCHEMICAL OXYGEN DEMAND (BOD) - (Analysis Performed by Pace Laboratories)								
BOD	**Complete**					Vendor Method		V_PACE
AMMONIA (COLORIMETRIC)								
Ammonia (Colorimetric)	**0.038**	mg-N/L		0.02	1	EPA 350.1	07/08/2013 11:55	BGN9034
NITRITE + NITRATE (COLORIMETRIC)								
Nitrite + Nitrate (Colorimetric)	**< 0.01**	mg-N/L		0.01	1	EPA 353.2	07/08/2013 11:09	BGN9034
TOTAL KJELDAHL NITROGEN (COLORIMETRIC)								
Total Kjeldahl Nitrogen (Colorimetric)	**0.19**	mg-N/L		0.15	1	EPA 351.2	07/10/2013 14:03	TLINN
TOTAL PHOSPHORUS (COLORIMETRIC)								
Total Phosphorus (Colorimetric)	**0.006**	mg-P/L		0.005	1	EPA 365.1	07/09/2013 08:35	BGN9034
INORGANIC IONS BY IC								
Chloride	**7.5**	mg/L		0.5	5	EPA 300.0	07/01/2013 14:39	JAHERMA
Sulfate	**9.7**	mg/L		0.5	5	EPA 300.0	07/01/2013 14:39	JAHERMA
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**0.031**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:14	MHH7131
Manganese (Mn)	**0.011**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:14	MHH7131
Silicon (Si)	**5.82**	mg/L		0.01	1	EPA 200.7	07/08/2013 10:14	MHH7131
Titanium (Ti)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:14	MHH7131
Vanadium (V)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:14	MHH7131
Miscellaneous Tests by a Vendor Laboratory - (Analysis Performed by Element One)								
Vendor Parameter	**Complete**					Vendor Method		V_ELE1
SULFIDE - (Analysis Performed by Element One)								
Vendor Parameter	**Complete**					Vendor Method		V_ELE1
TOTAL DISSOLVED SOLIDS								
TDS	**78**	mg/L		25	1	SM2540C	07/02/2013 14:14	SWILLI3

Site: Ash Basin **Sample #: 2013014997**

Collection Date: 27-Jun-13 9:15 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
SULFIDE - (Analysis Performed by Element One)								
Vendor Parameter	**Complete**					Vendor Method		V_ELE1

Certificate of Laboratory Analysis

Order # J13060456

Site: Blank

Sample #: 2013014998

Collection Date: 27-Jun-13 7:50 AM

Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Aluminum (Al)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:10	MHH7131
Manganese (Mn)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:10	MHH7131
Silicon (Si)	**0.057**	mg/L		0.01	1	EPA 200.7	07/08/2013 10:10	MHH7131
Titanium (Ti)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:10	MHH7131
Vanadium (V)	**< 0.005**	mg/L		0.005	1	EPA 200.7	07/08/2013 10:10	MHH7131

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 05, 2013

Program Manager
Duke Energy

,

RE: Project: 313060456
Pace Project No.: 92163334

Dear Program Manager:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Tabitha Dacal

Tabitha M Dacal for
Kevin Herring
kevin.herring@pacelabs.com
Project Manager

Enclosures

cc: Rodney Wike, Duke Energy

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: 313060456
Pace Project No.: 92163334

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: 313060456
Pace Project No.: 92163334

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92163334001	**2013014995**	SM 5210B	MDW	1	PASI-A
92163334002	**2013014996**	SM 5210B	MDW	1	PASI-A

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
5800 Kinley Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: 313060456
Pace Project No.: 92163334

Method: **SM 5210B**
Description: 5210B BOD, 5 day
Client: Duke Energy
Date: July 05, 2013

General Information:
2 samples were analyzed for SM 5210B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: 313060456
Pace Project No.: 92163334

Sample: 2013014995 **Lab ID: 92163334001** Collected: 06/27/13 08:00 Received: 06/28/13 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B							
BOD, 5 day	ND	mg/L	2.0	1	06/28/13 23:20	07/03/13 17:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: 313060456
Pace Project No.: 92163334

Sample: 2013014996 **Lab ID: 92163334002** Collected: 06/27/13 09:52 Received: 06/28/13 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B							
BOD, 5 day	ND	mg/L	2.0	1	06/28/13 23:20	07/03/13 17:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: 313060456
Pace Project No.: 92163334

QC Batch: WET/26028 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 92163334001, 92163334002

METHOD BLANK: 1002335 Matrix: Water
Associated Lab Samples: 92163334001, 92163334002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	07/03/13 17:30	

LABORATORY CONTROL SAMPLE: 1002336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	204	103	84.5-115.4	

SAMPLE DUPLICATE: 1002337

Parameter	Units	92163289001 Result	Dup Result	RPD	Qualifiers
BOD, 5 day	mg/L	2980	3040	2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: 313060456
Pace Project No.: 92163334

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 313060456
Pace Project No.: 92163334

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92163334001	**2013014995**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163334002	**2013014996**	SM 5210B	WET/26028	SM 5210B	WET/26029

REPORT OF LABORATORY ANALYSIS

Client Name:________________

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other________

Custody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other________

Thermometer Used: IR Gun T1102 T1301 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.:______________ **C** **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Date and Initials of person examining contents:________________

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☐Yes	☑No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☐Yes	☑No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☐Yes	☑No	☐N/A	12. Only receive 95 Only received 96 BODs
-Includes date/time/ID/Analysis Matrix: WT				
All containers needing preservation have been checked.	☐Yes	☐No	☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☐No	☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):__________				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: ____________________ Date/Time: ______________

Comments/ Resolution: ____________________________________

SCURF Review:	KLH	**Date:**	6/28/13
SRF Review:	KLH	**Date:**	7/1/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 92163334

92163334

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

92163334

Page 11 of 11

Page _1_ of _1_
DISTRIBUTION
ORIGINAL to LAB, COPY to CLIENT

COC REV DATE 6/25/2013

Duke Energy Analytical Laboratory
Chain of Custody & Sample Log

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-5038

Page 7 of 15

Customer Must Complete

Project Name: BCSS Bottom Ash Sluice			Phone No: 980-875-5963
Client: Josh Quinn/ Nathan Craig			Fax No: 980-875-4349
Business Unit: 20035	Process: BENVWT		Resp. Center To: FOPR
Project ID:	Activity ID:		Mail Code: MG03A3
Waterbody: BCSS Bottom Sluice	Station: Belews		

Analytical Laboratory Use Only

Order # 3130604456 | Matrix: OTHER | Samples Originating From: NC X SC ___
Logged By: JB | Date & Time: 6/28/13 08:29
Cooler Temp (C): ___
SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

PACE
PO #146146
[redacted]
Element One
PO#145772

	Filtration (0.45 um)	⇩ Filtered ⇩	⇩ Unfiltered ⇩										
Preservative		H_2SO_4 Ice	H_2SO_4 Ice	Ice	Ice	Ice	HNO_3	NaOH Zn acetate Ice	H_2SO_4 Ice		Ice		
Container Volume (mL)		250	1,000	1000	300	1000	500	250	250		300		
Container Type		HDPE	Glass	PET	PET	PET	HDPE	HDPE	HDPE		PET		

LAB USE ONLY Lab ID	Sample Description or ID: Location	Depth	Collection Information: Date	Time	Signature	Comp.	Grab	NH_3, NO_3-NO_2	O&G °	BOD 5 (Prism)	Cl, SO_4	TDS	Al, Mn, Si, Ti, V **	Sulfide ** Elem 1	TKN, TP		SO_3 (elem 1)		Total # Containers
30130149 95	Bottom Ash Sluice	0.3m	6-27-13	0800	DAVID HORNE	X	*	1	1 *	1	1	1	1	1 *	1		1		9
" 96	Service/ Intake Water	0.3m		0952			X	1	1	1	1	1 A	1	1	1		1		9
" 97	Ash Basin	0.3m		0915			X							1					1
" 98	Blank			0750									1						1
																			0
																			0
																			0
																			0
								Bottom Ash sluice composite started @ 0800											0
								with samples @ 5 minute intervals until											0
								0900											0
																			0
								A) TDS sample pulled @ 1045 at Intake											0
																			0
																			0
																			0
					TOTAL			2	1	2	2	2	3	2		0	2	0	16

001
002

Customer to complete all appropriate non-shaded areas.

Customer to complete appropriate columns to right

Customer to sign & date below

Relinquished By	Date/Time	Accepted By:	Date/Time
[signature]	6-27-13 1455	Cindy Knox	6-27-13 1455
[signature]	6/28/13 1310	[signature]	6-28-13 1310
[signature]	7/1/13 GCL		
Seal/Locked By: [signature]	Date/Time: 6/28/13 1330	Sealed/Lock Opened By	Date/Time

Comments
** Total Sulfide by: SM 4500-S2-D
METALS by TRM/ICP_MS: Ti, V
METALS by TRM/ICP: Al, Mn, Si

Customer, important: please indicate desired turnaround

Requested Turnaround
*14 Days ___
7 Days ___
* 48 Hr ___
*Other ___
* Add. Cost Will Apply

Total 20

0.5

Element One Inc.
6319-D Carolina Beach Rd.
Wilmington, NC 28412

Phone: 910 793-0128
Fax: 910 792-6853
e1lab@e1lab.com

elementOne

REPORT OF ANALYSES

Duke Energy
Laboratory Services
13339 Hagers Ferry Road Bld. MG03A
Huntersville, NC 28078

July 8, 2013
Client Project Name BCSS Bottom Ash Sluice
Client Project Number J13060456
PO Number

Sample Matrix	Other			Date Received	07/02/13
Date Analyzed	07/05/13	Method	SM 4500 S^{2-} D	Time Received	1101
Delivered by	FedEx			Received by	LLB

eOne ID	Duke Energy ID	Parameter	Result	Unit	Dil	DL	Date Sampled	Time Sampled
20725-1	Bottom Ash Sluice 0.3m	Sulfide	< 0.05	mg/L	1	0.05	06/27/13	0800
20725-2	Service/Intake Water 0.3m	Sulfide	< 0.05	mg/L	1	0.05	06/27/13	0952
20725-3	Ash Basin 0.3m	Sulfide	< 0.05	mg/L	1	0.05	06/27/13	0915

Ken Smith, Laboratory Director

20725 Duke Report Packet Compiled by DBL/KLS

NC Certifications: DW 37788 and DWQ DENR 604

Element One Inc.
6319-D Carolina Beach Rd.
Wilmington, NC 28412

Phone: 910 793-0128
Fax: 910 792-6853
e1lab@e1lab.com

elementOne

REPORT OF ANALYSES

Duke Energy
Laboratory Services
13339 Hagers Ferry Road Bld. MG03A
Huntersville, NC 28078

July 8, 2013
Client Project Name BCSS Bottom Ash Sluice
Client Project Number J13060456
PO Number

Sample Matrix	Other			Date Received	07/02/13
Date Analyzed	07/03/13	Method	EPA 300.0	Time Received	1101
Delivered by	FedEx			Received by	LLB

eOne ID	Duke Energy ID	Parameter	Result	Unit	Dil	DL	Date Sampled	Time Sampled
20725-4	Bottom Ash Sluice 0.3m	Sulfite	< 0.1	mg/L	1	0.1	06/27/13	0800
20725-5	Service/Intake Water 0.3m	Sulfite	< 0.1	mg/L	1	0.1	06/27/13	0952

Ken Smith, Laboratory Director

20725 Duke Report Packet Compiled by DBL / KLS

NC Certifications: DW 37788 and DWQ DENR 604

20725
~~20725~~ ZKB 7.2.13

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Laboratory
Chain of Custody & Sample Log

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N.C. 28078
(704) 875-5245
Fax: (704) 875-5038

Analytical Laboratory Use Only
Order # 313060456 | Matrix OTHER
Logged By KB | Date & Time 6/28/13 0829
Cooler Temp (C)
Samples Originating From NC X SC __
SAMPLE PROGRAM
Ground Water ___ NPDES ___
Drinking Water ___ UST ___
RCRA Waste ___

Page 1 of 1
DISTRIBUTION
ORIGINAL to LAB, COPY to CLIENT

COC REV DATE 6/25/2013

Project Name	BCSS Bottom Ash Sluice	Phone No:	980-875-5963
Client	Josh Quinn/ Nathan Craig	Fax No:	980-875-4349
Business Unit: 20035	Process: BENVWT	Resp. Center To:	FOPR
Project ID:	Activity ID:	Mail Code:	MG03A3
Waterbody: BCSS Bottom Sluice	Station: Belews		

PACE
PO #146146
[redacted]
Element One
PO#145772

Lab ID (LAB USE ONLY)	Location	Depth	Date	Time	Signature	Comp.	Grab	Filtered	NH3, NO3-NO2		O&G	BOD 5 (Prism)	Cl, SO4	TDS	Al, Mn, Si, Ti, V **	Sulfide ** Elem 1	TKN, TP	sulfite	SO3 (elem 1)	Element 1	Total # Containers
Preservative									H_2SO_4 Ice		H_2SO_4 Ice	Ice	Ice	Ice	HNO_3	NaOH Zn acetate Ice	H_2SO_4 Ice		Ice		
Container Volume (mL)									250		1,000	1000	300	1000	500	250	250		300		
Container Type									HDPE		Glass	PET	PET	PET	HDPE	HDPE	HDPE		PET		
2013014995	Bottom Ash Sluice	0.3m	6-27-13	0800	DAVID HORNE	X	*		1		1*	1	1	1	1	1*	1		1		9
" 96	Service/ Intake Water	0.3m	↓	0952	↓		X		1		1	1	1	1A	1	1	1		1		9
" 97	Ash Basin	0.3m	↓	0915	↓		X									1					1
" 98	Blank		↓	0750	↓										1						1
																					0
																					0
																					0
																					0
																					0
																					0
																					0
																					0
																					0
																					0
																					0
					TOTAL				2		1	2	2	2	3	2		0	2	0	16

Bottom Ash sluice composite started @ 0800 with samples @ 5 minute intervals until 0900

A) TDS sample pulled @ 1045 at Intake

Relinquished By	Date/Time	Accepted By:	Date/Time
John R Q	6-27-13 1455	Cindy Knox	6-27-13 1455
David Baker	6/28/13		
David Baker	7/1/13	Lisa Breton	7/2/13 1101
Seal/Locked By	Date/Time	Sealed/Lock Opened By	Date/Time

Customer important: please indicate desired turnaround

Requested Turnaround
*14 Days ___
7 Days ___ 7-11-13
* 48 Hr ___
*Other ___
* Add. Cost Will Apply

Total 20

Comments
** Total Sulfide by: SM 4500-S2-D
METALS by TRM/ICP MS: Ti, V
METALS by TRM/ICP: Al, Mn, Si

2.3°C

3 of 7

elementOne **SAMPLE SUBMISSION FORM** **Lab ID 20725**

Report DUE 07.11.13

Analysis Due Date 07.09.13
QA/QC/Report Due Date 07.10.13

Client:	Duke Energy
LIMS No	J13060456
Project ID	BCSS Bottom Ash Sluice

Date Rec:	07.02.13
Time Rec:	1101
Rec By	LLB

Ref. Method:

Sample Identification

1	Bottom Ash Sluice	0.3m	4	Bottom Ash Sluice	0.3m
2	Service/Intake Water	0.3m	5	Service/Intake Water	0.3m
3	Ash Basin	0.3m			

Analyses Requested	Samples 1-3	Sulfide
	Samples 4-5	SO3
	NOTE:	Duplicate and Spike per method requirements

The MS/MSD spike should approximate 2 to 3 times the sample concentration. If no sulfide detected at 100 µg/L spike the sample to render the final spike concentration at ~ 500 µg/L

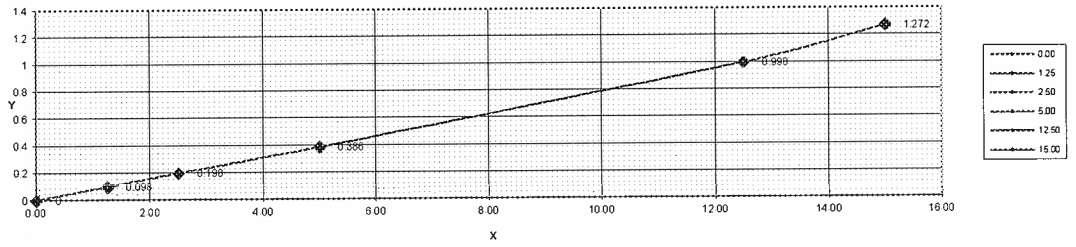
Lab Communications

SS Page 1 of 1
SS by LLB
7/2/2013 4:36:34 PM

Prep By / Date 7.5.13 ADS
Labeled By / Date LLB 7.2.13
ID Verification By /Date 7.5.13 ADS

METHOD :	SM 4500 S2- D	ELEMENT ONE		
ELEMENT ASSAY :	Sulfide	Spectrophotometer Wave Length	UNITS OF ANSWER	ug/mL
			DETECTION LIMIT (ug)	1.250
CLIENT:	Duke		SPK LEVEL (ug)	5
Lab ID#	20725	664	MAX ALIQUOT	25.00
Date:	~~6-20-13~~ 7-5-13 DBJ		STANDARD conc(ug)	X
Time Analysis Begun	16:05			5
Time Analysis Ended	16:35			
Analyst:	ADJ		STD ABSORPTION	Y

X	Y
ug STD SOLUTION	STD ABS
0.00	0
1.25	0.098
2.50	0.198
5.00	0.386
12.50	0.998
15.00	1.272



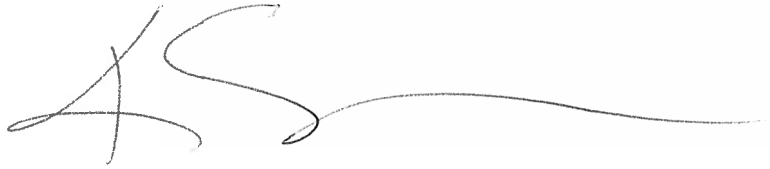
					Slope	0.083394306	Correlation	0.999010679
SAMPLE I.D.	SAMP ABS	ug PER ALIQUOT	mL ALIQUOT	F.VOL. X DILUTION	WEIGHT in g.	RESULTS ug/mL	% RPD % SPK REC	SPIKE LEVEL
LRB	0	0.00	25	1	1	<		
LRB SPK 1	0.392	4.85	25	1	1	0.194	97%	5.0
LRB SPK 2	1.02	12.30	25	1	1	0.492	98%	12.5
QC	0.386	4.78	25	1	1	0.191	96%	5.0
20725-1	0.004	0.25	25	1	1	<		
20725-1 dup	0.002	0.23	25	1	1	<	N/A	
20725-2	0.001	0.22	25	1	1	<		
20725-2 spk	0.389	4.82	10	1	1	0.482	96%	5.0
20725-2 spk	1.05	12.66	10	1	1	1.266	101%	12.5
20725-3	0.003	0.24	1	1	1	<		
BLK	0	0.000	25	1	1	<		
QC	0.386	4.784	25	1	1	0.191	96%	5.0

As per clients request: no sulfide is present in sample a 500ppm/12.5ug spike concentration was rendered.

e1 ID: 20725
Client: Duke
Date: 07.03.13
IC Data: 070213-20725
Analyst: KLS

Sample ID	SO3 Conc.	Dilution	PPM	Recovery /RPD
0	0	1		
0.1	0.104	1		
1	0.977	1		
5	5.008	1		
10	9.998	1		
QC	5.098	1	5.10	102%
Blank	0	1	0.00	
DL	0.100	1	0.1	100%
LRB	0	1	0.00	
LRB SPK	5.086	1	5.09	102%
20725-4	0.000	1	< 0.1	
20725-4 spk	4.531	1	4.53	91%
20725-5	0.000	1	< 0.1	
20725-5 dup	0.000	1	< 0.1	NA
QC	4.775	1	4.78	96%
Blank	0	1	0.00	

Correlation: 1.00000



elementOne

IC Sample Sheet/Digestion Worksheet

Lab ID #: ~~20737~~ 20725

Date: 7/2/13
Analyst: CS
Batch name: 070213-~~2073~~25

Column: Metrosep A Supp 5
Eluent: 3.2 mM Na_2CO_3/ 1.0mM $NaHCO_3$
Flow Rate: .7 mL/min.
Method: 300.0 SO3

AS LOC.	Sample ID	Client	Analyte	Results (ug/mL)	Results (ug/mL)	Dilution	Wt (g) / FV (mL)
	0.0		R^2		—		
	0.1	SO3	1.00000		.104		
	1.0				.977		
	5.0				5.008		
	10.0				9.998		
	QC				5.098		
	BLK				—		
	DL				0.100		
	LRB				—		
	LRB+				5.086		
	20737-4	Duke	SO3		—	1X	
	-4 SPK	↓	↓		4.531	↓	
	-5				—		
	-Soup				—		
	QC				4.775		
	BLK				—		

Curve IC Lot # IC2-117-2 Comments: 1 of 1
Spike 50 uL from 1000 ug/mL Std. to 10mL sample Lot #'s: IC ~~ME~~ Solution SO3Cal IC2-116-3 IC ~~NO2~~ Solution SO3QC: IC2-116-4
Submitted for QC- Date:_____ Time:_____ By:_____ QC Review- Date: 7/3/13 Time: 830 By: CS
Re-Test Required- No ✓ Yes_____ Comments:_____
Re-Submitted for QC- Date:_____ Time:_____ By:_____ QC Review- Date:_____ Time:_____ By:_____

Duke Energy Analytical Laboratory
Chain of Custody & Sample Log

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-5038

Analytical Laboratory Use Only

Order #	Matrix	Samples Originating From
313060456	OTHER	NC X SC
Logged By: BB	Date & Time: 6/28/13 08:29	SAMPLE PROGRAM: Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___
	Cooler Temp (C)	

Page _1_ of _1_
DISTRIBUTION
ORIGINAL to LAB, COPY to CLIENT

COC REV DATE **6/25/2013**

PACE
PO #146146
Element One
PO#145772

Project Name	BCSS Bottom Ash Sluice
Phone No:	980-875-5963
Client	Josh Quinn/ Nathan Craig
Fax No:	980-875-4349
Business Unit:	20035
Process:	BENVWT
Resp. Center To:	FOPR
Project ID:	
Activity ID:	
Mail Code:	MG03A3
Waterbody:	BCSS Bottom Sluice
Station:	Belews

Customer Must Complete

Customer to complete all appropriate non-shaded areas.

	Filtration (0.45 um)	Filtered	Unfiltered								
Preservative		H_2SO_4 Ice	H_2SO_4 Ice	Ice	Ice	Ice	HNO_3	NaOH Zn acetate Ice	H_2SO_4 Ice		Ice
Container Volume (mL)		250	1,000	1000	300	1000	500	250	250		300
Container Type		HDPE	Glass	PET	PET	PET	HDPE	HDPE	HDPE		PET

LAB USE ONLY Lab ID	Location	Depth	Date	Time	Signature	Comp.	Grab	NH3, NO3-NO2	O&G	BOD 5 (Prism)	Cl, SO4	TDS	Al, Mn, Si, Ti, V **	Sulfide ** Elem 1	TKN, TP		SO3 (elem 1)		Total # Containers
2013014995	Bottom Ash Sluice	0.3m	6-27-13	0800	DAVID HORNE	X	*	1	1 *	1	1	1	1	1 *	1		1		9
" 96	Service/ Intake Water	0.3m	↓	0952	↓		X	1	1	1	1	1 A	1	1	1		1		9
" 97	Ash Basin	0.3m	↓	0915	↓		X							1					1
" 98	Blank		↓	0750	↓								1						1
																			0
																			0
																			0
																			0
																			0
																			0
																			0
																			0
																			0
																			0
																			0
					TOTAL			2	1	2	2	2	3	2		0	2	0	16

Customer to complete appropriate columns to right

Bottom Ash sluice composite started @ 0800 with samples @ 5 minute intervals until 0900

A) TDS sample pulled @ 1045 at Intake

Customer to sign & date below

Relinquished By	Date/Time	Accepted By:	Date/Time
[signature]	6-27-13 1455	Cindy Knox	6-27-13 1455
Relinquished By: Dan J. Behn	6/28/13 1310	Accepted By: [signature]	6-28-13 1310
Relinquished By: Dan J. Behn	7/1/13 GCL	Accepted By:	
Seal/Locked By	Date/Time	Sealed/Lock Opened By	Date/Time

Comments
** Total Sulfide by: SM 4500-S2-D
METALS by TRM/ICP_MS: Ti, V
METALS by TRM/ICP: Al, Mn, Si

Customer, important: please indicate desired turnaround

Requested Turnaround
*14 Days ______
7 Days ______
* 48 Hr ______
*Other ______
* Add. Cost Will Apply

Total 20